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DOD Blasts EPA Short-Term TCE Limits But Seeks Response Guidance

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The Defense Department (DOD) is attacking EPA short-term exposure limits for trichloroethylene (TCE) in indoor air as based on conservative assumptions and possibly bad science, criticism that echoes industry concerns, and is also asking the agency to include in upcoming final vapor intrusion guidance "defensible procedures" for setting the limits and responding to them at military facilities.

DOD raises its concerns in June 28 comments on EPA's 2002 draft vapor intrusion guidance, saying that EPA has ordered evacuations and other costly response measures at two DOD facilities, prompted by the application of new non-cancer toxicity limits for TCE intended to prevent cardiac birth defects and other harms due to acute inhalation.

Among other things, DOD questions the basis for the limits, which EPA has enforced differently in Regions III and IX, and asks for procedures for setting more appropriate limits.

"DOD is concerned about the precedent and ultimately, the scientific defensibility of these proposed short-term non-cancer rapid response levels for TCE and strongly recommends that USEPA incorporate a discussion in the [final vapor intrusion guidance (FVIG)] that addresses defensible procedures for determining appropriate rapid action levels," the comments say.

EPA is currently reviewing Region IX's proposed interim Removal Action Level (RAL) of 15 micrograms per cubic meter (ug/m^3) after industry representatives and Region IX officials asked EPA headquarters for a weight-of-evidence evaluation to determine the scientific validity of the standard aimed at protecting construction workers renovating offices near the Middlefiled-Ellis-Whisman Superfund (MEW) site in Mountain View, CA, for companies including Google, Inc.

And the DOD comments say Region III required the evacuation of military facilities when indoor air levels of TCE reached 27 ug/m^3. A Navy press release from February says the evacuations occurred at the Naval Weapons Station in Yorktown, Va., where approximately 50 workers were relocated, and where the Navy said the buildings would be remediated to reduce vapor intrusion risk, and then retested for TCE.

The department says in its comments to EPA that unnecessary responses, including evacuations, are costly and can affect DOD's missions. "DOD is concerned about the inconsistencies, controversy, defensibility and potential delays related to the development and application of short-term rapid action levels and therefore, recommends that USEPA address this issue in the FVIG," the comments say.

Vapor intrusion occurs when toxic vapors move from below ground contamination into occupied buildings through cracks in basements floors, utility line openings or other pathways. DOD says vapor intrusion is a "critical factor" in cleanup decisions at some DOD facilities, and that uncertainty in vapor intrusion assessments complicates those decisions.

An industry source says the different approaches Region III and Region IX have taken with short-term TCE exposure are reminiscent of what happened when EPA issued a draft revised risk assessment for TCE in 2001, prompting one EPA region to use the new, more stringent draft number while another region continued to use the existing figure. The inconsistency led to a long dispute between industry and EPA.

"How could [EPA] have different regions requiring cleanup to different levels on the same compound," the source says of the past controversy, adding the agency never directly answered that question. "You got the same thing possibly occurring again," the source says.

EPA's Proposed RAL

EPA headquarters is currently reviewing whether Region IX's proposed RAL to protect against cardiac birth defects is appropriately derived from a revised Integrated Risk Information System (IRIS) assessment for TCE that EPA finalized last September. Industry officials have criticized the RAL, saying the method for crafting the limit is at odds with agency policy, and that the standard is orders of magnitude stricter than similar levels crafted by other agencies.

Industry sources have said the RAL would curb real estate deals unnecessarily, and spur personal injury suits. But an environmentalist has said risks from short-term exposures to TCE show stricter monitoring of indoor air is needed in occupied buildings and has urged EPA to include continuous monitoring requirements in the FVIG, which EPA has said it plans to complete by Nov. 30.

DOD agrees with industry that the two short-term limits for TCE lack "peer review, credibility, and defensibility," but the agency says some short-term standard is needed for every volatile chemical. DOD asks that the final guidance include methods for deriving "appropriate" short-term exposure levels, and for response procedures for when those levels are reached in indoor air. Citing EPA's IRIS database, DOD defines acute exposure as lasting less than 24 hours, sub-chronic as repeated exposures for more than 30 days, or up to 10 percent of the human lifespan, and chronic exposure as for more than 10 percent of a human lifespan.

The military currently uses minimal risk levels set by the Agency for Toxic Substances & Disease Registry combined with site-specific parameters to determine whether to immediately reduce vapor levels in indoor air through methods such as increasing ventilation of worker occupied buildings. But DOD also says EPA guidance on rapid responses, including when to take them and what safety measures, like evacuations, are appropriate, would improve consistency in responses and agreement among stakeholders.

"DOD requests EPA provide specific procedures to assess short-term and acute risk for both residential and industrial sites and options for rapid response while buildings remain occupied unless an acute risk is evident," comments say. In addition, DOD asks for advice on assessing sites for contaminants for which short-term exposure standards do not exist.

In its comments, DOD also echoes another aspect of industry criticism of Region IX's proposed RAL for TCE, by saying EPA guidance on vapor intrusion and that of other regulators "incorporate conservative default assumptions," which can unnecessarily raise costs of vapor intrusion assessments. Those assessments at DOD facilities already run between $100,000 and $400,000 and take between one and two years to complete, comments say.

DOD Recommendations

In addition to requesting EPA include discussion on deriving short-term levels and procedures for rapid responses in its final guidance, DOD also asks EPA to include a multi-step decision making process from the Interstate Technology and Regulatory Council's 2007 Vapor Intrusion Guidance, which includes criteria for either continuing or terminating investigations, and also criteria for rapid action responses and mitigation. And DOD suggests that concepts from a Navy vapor intrusion evaluation tool, which helps assessors evaluate data and choose strategies, be included in the guidance.

The DOD comments also repeat industry concerns that attenuation factors included in EPA technical documents, which the agency plans to incorporate in its upcoming guidance, are too conservative.

Attenuation factors are mathematical tools assessors use to measure how much contamination is likely to move from below ground to indoor air. Part of the problem with the agency's use of attenuation factors in technical documents, DOD says, is that the industrial or office facilities on DOD installations are constructed differently from the residential buildings considered in EPA documents, and those differences affect the movement of vapors.

"DOD understands that USEPA focused the current efforts on residential structures but strongly recommends that a similar analysis of data for commercial/industrial buildings be included prior to finalizing the [vapor intrusion guidance] in order to improve the site screening and investigation processes at DOD and other industrial sites."